INDEX TO VOLUME LXXVIII.

January 1 to June 30, 1903.

TP700
.A5

A

Accountant, The Mechanical..... 210
Adams, Alton D., Electrical Supply Systems in 1902, Statistics of the Massachusetts..... 846
Adams, Alton D., Storage Batteries in Electrical Supply... 12
Address of President Wm. E. McKay, New England Association of Gas Engineers..... 322
Address of President Chas. Woodward Andrews, Ohio Gas Light Association..... 449
Address of President F. W. Bowen, Wisconsin Gas Association..... 366
Address of the President (W. G. Seabury) of the Kansas Gas, Water and Electric Light Association 5
*Air, Secondary, Is the Zigzag Flue Necessary for Heating? by James Whyte..... 766
*Ammonia Concentration at Gas Works, by John S. Unger 327
*Ampere Hour Capacity of the Lead Storage Battery, by A. L. Marsh..... 288
Apparatus, Electrical, in Coal Mining, by S. B. Belden.... 1010
*Appliances, Fuel Gas, Report of the Committee Appointed by the Ohio Gas Light Association to Determine Standard Methods of Testing.....842, 889
Appliances, Gas, by H. K. Morrison..... 406
Artificial Gas Business, Natural Gas as a Factor in the, by F. W. Stone 570
*Artificial Gas Under High Pressure, A Second Year's Experience Distributing, by Geo. F. Goodnow..... 367
*Artistic Candles and Candlesticks of the Far East, by An Exile 931
Associations, District Gas Managers', American Methods of Enhancing the Usefulness of..... 882
Auchy, G., Carbon by Combustion, The Rapid Determination of..... 51

B

*Baehr, W. A., Recuperative Benches, The Construction and Operation of..... 563
Baker, S. E., Bill Collection, Methods of..... 365
*Barnum, D. D., Electrical Disturbance in the Gas Business, An..... 447
Batteries, Storage, in Electrical Supply, by Alton D. Adams 12
*Bavarian Government Reports on Lighting in Schools, etc. 803
Bee-Hive Ovens with Reference to Yield, Coking in, by Chas. Catlett, M.E 167
Belden, S. B., Electrical Apparatus in Coal Mining 1010
Benzine in Illuminating Gas, The Determination of, by L. M. Dennis and J. G. O'Neill..... 770
*Birchmore, Dr. W. H., Naphthaline.....962, 1002
Bituminous Coal Industry, Concentration in the, by F. E. Saward 532
Bituminous Macadam Pavement..... 208
Blackwell, F. O., Insulators, The Testing of..... 692
*Blast Furnace Gas Engines and Their Work..... 8, 46
Board of Gas and Electric Light Commissioners, A Review of the Eighteenth Annual Report of the Massachusetts.....649, 689, 729
Booth, W. H., Power Plant, Points in the Design of a..... 773
Bowen, F. W., President Wisconsin Gas Association, Address of..... 366
Bridgman, A. F., Property Returns on Public Works..... 129
Briquetting Coal Dust, by F. Saward 287
Britton John A., Something about the Oakland (Cal.) Gas, Light and Heat Company, and its President 284
Buildings, The Wiring of..... 231
Bullock, B. F., Cement Joints for Street Mains, Experiences with..... 803
Business College President, A..... 252

C

Calorimetry, by E. Fearon..... 762
*Candles and Candlesticks of the Far East, Artistic, by An Exile 931
Carbon by Combustion, The Rapid Determination of, by G. Auchy..... 51
Catlett, Chas., M.E., Coking in Bee-Hive Ovens with Reference to Yield 167
Cement Joints for Street Mains, Experiences with, by B. F. Bullock 803
*Central Station Gas Engines, by C. H. Williams..... 407
Central Station Records and Returns, Notes on the Design of, by F. H. Davies..... 849
Central Stations, Economical and Safe Limits in the Size of 768
Central Station Working, Notes on 371
Central Station Tendencies, Chicago Discussion of..... 805
Charging, Rates and Methods of, by J. W. Shuster 211
Cherry, L. B., Electric Plant, A Unique 370
*Chimneys for Gas Stoves, by C. F. Hauss..... 765
*Circuits, High Tension, An Electrically Operated Oil Circuit Breaker for..... 169
City Engineering Problems, by John M. Goodell..... 289
Clinker, R. C., Heating of Transformers 91
Coal and Coke Development, Activity in, by F. E. Saward.. 764
*Coal and Coke, Sulphur in, A Rapid Method for Determining, by Carl Sundstrom..... 285
Coal Carbonized, Maximum Yield of Gas per Pound of, by John Somerville..... 922
Coal Dust, Briquetting, by F. Saward..... 287
*Coal Gas and Allied Illuminants, The Future of—Cantor Lectures, by Prof. Vivian B. Lewes..... 5, 42, 86, 125
Coal Industry, Bituminous Concentration in the, by F. E. Saward 532
Coal Mining, Electrical Apparatus in, by S. B. Belden 1010
Coal Tar Pavements in Northern New England 732
Coke, Retort Oven for Foundry Use, by W. J. Keep..... 970
Coke, Selenium in. 763
Coke, The Demand for, by F. E. Saward..... 451
Conductivity, Electric, of Filaments of Nernst Lamps..... 251
*Construction and Operation of Recuperative Benches, by W. A. Baehr..... 563
Consumers, Increasing Sales of Gas to Existing, by B. W. Perkins 929
Cooper, A. F., Incandescent Lighting, An Experience with 445
Cornish, R. C., Photometric Tests of Incandescent Mantles in Commercial Use, A Few..... 330
*Cornish, R. C., Wrinkle Department, Second Annual Meeting, Wisconsin Gas Association 571
CORRESPONDENCE—
Correction with an Explanation, A 362
Fact, A, Not a Fancy..... 642
Herring, Mr. W. R., on Some Statements Made at the Last Meeting of the American Gas Light Association Respecting Inclined and Horizontal Retorts.. 42
Special English Correspondence....171, 330, 491, 651, 852, 1012
Supporter, An Enthusiastic..... 642
Corrosion by Electrolysis..... 691
"Cox Computer," Some Uses of the, by Walton Forstall... 802
Current, Lost and Unaccounted for, by L. G. Van Ness.... 1011
Cyanide, The Gas Industry and the Manufacture of..... 127
Cyanogen and Naphthaline, Removing from Gas..... 247
Cyanogen from Gas, The Extraction of..... 166

D

Davies, F. H., Central Station Records and Returns, Notes on the Design of..... 849
Devereux, W., Fire Hazards, Some Electrical..... 328
*Distributing Artificial Gas Under High Pressure, A Second Year's Experience, by Geo F. Goodnow 367
*Distribution High Pressure, Notes on, by W. A. Learned 532
Distribution of Power, Electrical, in Industrial Establishments, by Cecil P. Poole..... 48
District Gas Managers' Associations, American Methods of Enhancing the Usefulness of..... 882
Dennis, L. M., and J. G O'Neill. Benzine in Illuminating Gas, The Determination of..... 770
Density of Smoke, Determining the..... 805

E

Economic Value of Testing, The, by Prof. George D. Shepardson 248
EDITORIALS—
Acknowledgment, An..... 402
American Water Works Association, Annual Meeting.. 1002
Annual Meeting, Something That Happened at an..... 441
Association Meetings, The Coming..... 81
Coal Free for One Year..... 122
Decision, A Just..... 722
Editor Doherty Explains..... 362
Electric Lighting Engineers of New England, The Association of..... 442
"Gas Analysts' Manual," by Jaques Abady..... 1
Gas and Electric Light Commissioners, Eighteenth Annual Report, Massachusetts Board of 521
General Hickenlooper Retires from the Presidency of the Cincinnati Gas and Electric Company..... 841
Harbison, Hugh, Death of..... 402
Higgins, John D., Death of..... 762
Isbell-Porter Company, The Status of the..... 402
Judge Seawell's Sound Sense..... 602
Kennedy, E. S. T., Death of 402
Library Committee, Western Gas Association, Report of the 921
Maximum Economical Yield per Pound of Coal Carbonized, John Somerville on the: An Appreciation..... 961
Meginniss, N. T., Personal..... 162
Michigan Gas Association, Special Editorial Correspondence 282
Morley, Jesse Healy, Death of..... 1001
Municipal Lighting Bill, The Col. Robert Grier Monroe 562
Municipal Lighting Plant, No..... 641
New England Association of Gas Engineers, Special Editorial Correspondence..... 281
New England Association's Annual Dinner, The..... 321
Ohio Gas Light Association, Nineteenth Annual Meeting.....441, 481
Ohio Gas Light Association, The Cincinnati Meeting of the..... 362
Pacific Coast Gas Association, Experience Department. 841
Pacific Coast Gas Association, Novelty Department..... 841
Personal Budget, A 41
President Bourn's Announcement..... 682
President Humphreys, Installation of..... 242
"Self-Instruction for Students in Gas Manufacture: Elementary" 722
Standardizing Methods for Testing Fuel Gas Appliances, Excellent Work by the Committee of the Ohio Gas Light Association on..... 881
Tribute to a Worthy Man, A Graceful..... 1
Western Gas Association, Special Editorial Correspondence 801
Western Gas Association, The Twenty-sixth Annual Meeting 762
Wisconsin Gas Association, Annual Meeting of the 242
Educational Fund, Gas, A Statement from the Trustees of the 811
Educational Points, Some, by H. S. Knowlton..... 932
Egner, Frederic, Hints to Beginners and Young Gas Engineers 122
Egner, Frederic, Items of General Interest, A Few 844
Egner, Frederic, Retrospect, A..... 2
Electrical Distribution of Power in Industrial Establishments, by Cecil P. Poole..... 48
*Electrical Disturbance in the Gas Business, An, by D. D. Barnum..... 447
Electrical Engineer, How to Become an..... 572
*Electrical Equipment, Hints on the Care of, by W. E Witter 89
Electrical Fire Hazards, Some, by W. Devereux..... 328
*Electrically Operated Oil Circuit Breaker for High Tension Circuits, An..... 169
Electrical Science During the Year 1902, The Progress of, by A. E. Kennelly 50
Electrical Supply, Storage Batteries in, by Alton D. Adams 12
Electrical Supply Systems in 1902, Statistics of the Massachusetts, by Alton D. Adams..... 846
Electrical Work in the Phillipines, by W. G. Irwin..... 170
Electric Conductivity of Filaments of Nernst Lamps..... 251
Electricity and Fire Insurance..... 131
*Electric Lamps in England, The Manufacture of..... 806
Electric Plant, A Unique, by L. B. Cherry..... 370
Electrolysis, An Ordinance to Prevent 93
Electrolysis, Corrosion by..... 691
Engineer, Gas, The Dilemmas of the..... 285
Engineering Problems, City, by John M. Goodell..... 289
Engineering Profession, The Unity of the Four Great Branches of the..... 846
Engineers who will be Wanted, The, by Alfred H. Mayes... 287
Engines, Gas, Four Months' Experience with, by Geo. MacMillan..... 326
Engines, Gas Fuels for Modern, by George E. Walsh..... 207
*English Inclined Retort Installation, Milan, Italy 202, 243
Enhancing the Usefulness of Gas Managers' Associations, American Methods of..... 882
Extraction of Cyanogen from Gas, The 166

F

*Factories and Workshops, Lighting of..... 165
Fearon, E., Calorimetry..... 762
Filaments of Nernst Lamps, Electric Conductivity of..... 251
Fire Hazards, Some Electrical, by W. Devereux 328
Fire Insurance and Electricity..... 131
Fletcher, Thos., Gas Fires, The Choice of..... 132
*Flue, Is the Zigzag Necessary for Heating Secondary Air? by James Whyte 766
Forstall, Walton, "Cox Computer," Some Uses of the..... 802
Foundry Use, Retort Oven Coke for, by W. J. Keep..... 970
*Fuel Gas Appliances, Report of the Committee Appointed by the Ohio Gas Light Association to Determine Standard Methods of Testing.....842, 889
Fuels, Gas, for Modern Engines, by George E. Walsh..... 207

G

Gas and Electric Light Commissioners, A Review of the Eighteenth Annual Report of the Massachusetts Board of.....649, 689, 729
Gas and Meters, by John McIlhenny 925
Gas Appliances, by H. K. Morrison..... 406
*Gas Distributing System of the Suburban Gas and Electric Company in Revere and Winthrop, Mass., The Development of the, by A. B. Tenney..... 484
Gas, Domestic Heating by, by Donald McDonald..... 684
Gas Educational Fund, A Statement from the Trustees of the..... 811
Gas Engineers, Young, Hints to Beginners and, by Frederic Egner 122
Gas Engineer, The Dilemmas of the..... 285
*Gas Engines, Central Station, by C. H. Williams..... 407
Gas Engines, Four Months' Experience with, by Geo. MacMillan..... 326
Gas, Effect of Pressure of, on Luminosity..... 370
Gas Fires, The Choice of, by Thos Fletcher..... 132
*Gas for Industrial Purposes, by James H. Walker..... 488
Gas Fuels for Modern Engines, by George E. Walsh..... 207

INDEX TO VOLUME LXXVIII.

January 1 to June 30, 1903.

TP700
.A5

A

Accountant, The Mechanical..... 210
Adams, Alton D., Electrical Supply Systems in 1902, Statistics of the Massachusetts..... 846
Adams, Alton D., Storage Batteries in Electrical Supply... 12
Address of President Wm. E. McKay, New England Association of Gas Engineers..... 322
Address of President Chas. Woodward Andrews, Ohio Gas Light Association..... 449
Address of President F. W. Bowen, Wisconsin Gas Association..... 366
Address of the President (W. G. Seabury) of the Kansas Gas, Water and Electric Light Association 5
*Air, Secondary, Is the Zigzag Flue Necessary for Heating? by James Whyte..... 766
*Ammonia Concentration at Gas Works, by John S. Unger 327
*Ampere Hour Capacity of the Lead Storage Battery, by A. L. Marsh..... 288
Apparatus, Electrical, in Coal Mining, by S. B. Belden.... 1010
*Appliances, Fuel Gas, Report of the Committee Appointed by the Ohio Gas Light Association to Determine Standard Methods of Testing.....842, 889
Appliances, Gas, by H. K. Morrison..... 406
Artificial Gas Business, Natural Gas as a Factor in the, by F. W. Stone 570
*Artificial Gas Under High Pressure, A Second Year's Experience Distributing, by Geo. F. Goodnow..... 367
*Artistic Candles and Candlesticks of the Far East, by An Exile 931
Associations, District Gas Managers', American Methods of Enhancing the Usefulness of..... 882
Auchy, G., Carbon by Combustion, The Rapid Determination of..... 51

B

*Baehr, W. A., Recuperative Benches, The Construction and Operation of..... 563
Baker, S. E., Bill Collection, Methods of..... 365
*Barnum, D. D., Electrical Disturbance in the Gas Business, An..... 447
Batteries, Storage, in Electrical Supply, by Alton D. Adams 12
*Bavarian Government Reports on Lighting in Schools, etc. 803
Bee-Hive Ovens with Reference to Yield, Coking in, by Chas. Catlett, M.E 167
Belden, S. B., Electrical Apparatus in Coal Mining 1010
Benzine in Illuminating Gas, The Determination of, by L. M. Dennis and J. G. O'Neill..... 770
*Birchmore, Dr. W. H., Naphthaline.....962, 1002
Bituminous Coal Industry, Concentration in the, by F. E. Saward 532
Bituminous Macadam Pavement..... 208
Blackwell, F. O., Insulators, The Testing of..... 692
*Blast Furnace Gas Engines and Their Work..... 8, 46
Board of Gas and Electric Light Commissioners, A Review of the Eighteenth Annual Report of the Massachusetts.....649, 689, 729
Booth, W. H., Power Plant, Points in the Design of a..... 773
Bowen, F. W., President Wisconsin Gas Association, Address of..... 366
Bridgman, A. F., Property Returns on Public Works..... 129
Briquetting Coal Dust, by F. Saward 287
Britton John A., Something about the Oakland (Cal.) Gas, Light and Heat Company, and its President 284
Buildings, The Wiring of..... 231
Bullock, B. F., Cement Joints for Street Mains, Experiences with..... 803
Business College President, A..... 252

C

Calorimetry, by E. Fearon..... 762
*Candles and Candlesticks of the Far East, Artistic, by An Exile 931
Carbon by Combustion, The Rapid Determination of, by G. Auchy..... 51
Catlett, Chas., M.E., Coking in Bee-Hive Ovens with Reference to Yield 167
Cement Joints for Street Mains, Experiences with, by B. F. Bullock 803
*Central Station Gas Engines, by C. H. Williams..... 407
Central Station Records and Returns, Notes on the Design of, by F. H. Davies..... 849
Central Stations, Economical and Safe Limits in the Size of 768
Central Station Working, Notes on 371
Central Station Tendencies, Chicago Discussion of..... 805
Charging, Rates and Methods of, by J. W. Shuster 211
Cherry, L. B., Electric Plant, A Unique 370
*Chimneys for Gas Stoves, by C. F. Hauss..... 765
*Circuits, High Tension, An Electrically Operated Oil Circuit Breaker for..... 169
City Engineering Problems, by John M. Goodell..... 289
Clinker, R. C., Heating of Transformers 91
Coal and Coke Development, Activity in, by F. E. Saward.. 764
*Coal and Coke, Sulphur in, A Rapid Method for Determining, by Carl Sundstrom..... 285
Coal Carbonized, Maximum Yield of Gas per Pound of, by John Somerville..... 922
Coal Dust, Briquetting, by F. Saward..... 287
*Coal Gas and Allied Illuminants, The Future of—Cantor Lectures, by Prof. Vivian B. Lewes..... 5, 42, 86, 125
Coal Industry, Bituminous Concentration in the, by F. E. Saward 532
Coal Mining, Electrical Apparatus in, by S. B. Belden 1010
Coal Tar Pavements in Northern New England 732
Coke, Retort Oven for Foundry Use, by W. J. Keep..... 970
Coke, Selenium in. 763
Coke, The Demand for, by F. E. Saward..... 451
Conductivity, Electric, of Filaments of Nernst Lamps..... 251
*Construction and Operation of Recuperative Benches, by W. A. Baehr..... 563
Consumers, Increasing Sales of Gas to Existing, by B. W. Perkins 929
Cooper, A. F., Incandescent Lighting, An Experience with 445
Cornish, R. C., Photometric Tests of Incandescent Mantles in Commercial Use, A Few..... 330
*Cornish, R. C., Wrinkle Department, Second Annual Meeting, Wisconsin Gas Association 571
CORRESPONDENCE—
Correction with an Explanation, A 362
Fact, A, Not a Fancy..... 642
Herring, Mr. W. R., on Some Statements Made at the Last Meeting of the American Gas Light Association Respecting Inclined and Horizontal Retorts.. 42
Special English Correspondence....171, 330, 491, 651, 852, 1012
Supporter, An Enthusiastic..... 642
Corrosion by Electrolysis..... 691
"Cox Computer," Some Uses of the, by Walton Forstall... 802
Current, Lost and Unaccounted for, by L. G. Van Ness.... 1011
Cyanide, The Gas Industry and the Manufacture of..... 127
Cyanogen and Naphthaline, Removing from Gas..... 247
Cyanogen from Gas, The Extraction of..... 166

D

Davies, F. H., Central Station Records and Returns, Notes on the Design of..... 849
Devereux, W., Fire Hazards, Some Electrical..... 328
*Distributing Artificial Gas Under High Pressure, A Second Year's Experience, by Geo F. Goodnow 367
*Distribution High Pressure, Notes on, by W. A. Learned 532
Distribution of Power, Electrical, in Industrial Establishments, by Cecil P. Poole..... 48
District Gas Managers' Associations, American Methods of Enhancing the Usefulness of..... 882
Dennis, L. M., and J. G O'Neill. Benzine in Illuminating Gas, The Determination of..... 770
Density of Smoke, Determining the..... 805

E

Economic Value of Testing, The, by Prof. George D. Shepardson 248
EDITORIALS—
Acknowledgment, An..... 402
American Water Works Association, Annual Meeting.. 1002
Annual Meeting, Something That Happened at an..... 441
Association Meetings, The Coming..... 81
Coal Free for One Year..... 122
Decision, A Just..... 722
Editor Doherty Explains..... 362
Electric Lighting Engineers of New England, The Association of..... 442
"Gas Analysts' Manual," by Jaques Abady..... 1
Gas and Electric Light Commissioners, Eighteenth Annual Report, Massachusetts Board of 521
General Hickenlooper Retires from the Presidency of the Cincinnati Gas and Electric Company..... 841
Harbison, Hugh, Death of..... 402
Higgins, John D., Death of..... 762
Isbell-Porter Company, The Status of the..... 402
Judge Seawell's Sound Sense..... 602
Kennedy, E. S. T., Death of 402
Library Committee, Western Gas Association, Report of the 921
Maximum Economical Yield per Pound of Coal Carbonized, John Somerville on the: An Appreciation..... 961
Meginniss, N. T., Personal..... 162
Michigan Gas Association, Special Editorial Correspondence 282
Morley, Jesse Healy, Death of..... 1001
Municipal Lighting Bill, The Col. Robert Grier Monroe 562
Municipal Lighting Plant, No..... 641
New England Association of Gas Engineers, Special Editorial Correspondence..... 281
New England Association's Annual Dinner, The..... 321
Ohio Gas Light Association, Nineteenth Annual Meeting.....441, 481
Ohio Gas Light Association, The Cincinnati Meeting of the..... 362
Pacific Coast Gas Association, Experience Department. 841
Pacific Coast Gas Association, Novelty Department..... 841
Personal Budget, A 41
President Bourn's Announcement..... 682
President Humphreys, Installation of..... 242
"Self-Instruction for Students in Gas Manufacture: Elementary" 722
Standardizing Methods for Testing Fuel Gas Appliances, Excellent Work by the Committee of the Ohio Gas Light Association on..... 881
Tribute to a Worthy Man, A Graceful..... 1
Western Gas Association, Special Editorial Correspondence 801
Western Gas Association, The Twenty-sixth Annual Meeting 762
Wisconsin Gas Association, Annual Meeting of the 242
Educational Fund, Gas, A Statement from the Trustees of the 811
Educational Points, Some, by H. S. Knowlton..... 932
Egner, Frederic, Hints to Beginners and Young Gas Engineers 122
Egner, Frederic, Items of General Interest, A Few 844
Egner, Frederic, Retrospect, A..... 2
Electrical Distribution of Power in Industrial Establishments, by Cecil P. Poole..... 48
*Electrical Disturbance in the Gas Business, An, by D. D. Barnum..... 447
Electrical Engineer, How to Become an..... 572
*Electrical Equipment, Hints on the Care of, by W. E Witter 89
Electrical Fire Hazards, Some, by W. Devereux..... 328
*Electrically Operated Oil Circuit Breaker for High Tension Circuits, An..... 169
Electrical Science During the Year 1902, The Progress of, by A. E. Kennelly 50
Electrical Supply, Storage Batteries in, by Alton D. Adams 12
Electrical Supply Systems in 1902, Statistics of the Massachusetts, by Alton D. Adams..... 846
Electrical Work in the Phillipines, by W. G. Irwin..... 170
Electric Conductivity of Filaments of Nernst Lamps..... 251
Electricity and Fire Insurance..... 131
*Electric Lamps in England, The Manufacture of..... 806
Electric Plant, A Unique, by L. B. Cherry..... 370
Electrolysis, An Ordinance to Prevent 93
Electrolysis, Corrosion by..... 691
Engineer, Gas, The Dilemmas of the..... 285
Engineering Problems, City, by John M. Goodell..... 289
Engineering Profession, The Unity of the Four Great Branches of the..... 846
Engineers who will be Wanted, The, by Alfred H. Mayes... 287
Engines, Gas, Four Months' Experience with, by Geo. MacMillan..... 326
Engines, Gas Fuels for Modern, by George E. Walsh..... 207
*English Inclined Retort Installation, Milan, Italy 202, 243
Enhancing the Usefulness of Gas Managers' Associations, American Methods of..... 882
Extraction of Cyanogen from Gas, The 166

F

*Factories and Workshops, Lighting of..... 165
Fearon, E., Calorimetry..... 762
Filaments of Nernst Lamps, Electric Conductivity of..... 251
Fire Hazards, Some Electrical, by W. Devereux 328
Fire Insurance and Electricity..... 131
Fletcher, Thos., Gas Fires, The Choice of..... 132
*Flue, Is the Zigzag Necessary for Heating Secondary Air? by James Whyte 766
Forstall, Walton, "Cox Computer," Some Uses of the..... 802
Foundry Use, Retort Oven Coke for, by W. J. Keep..... 970
*Fuel Gas Appliances, Report of the Committee Appointed by the Ohio Gas Light Association to Determine Standard Methods of Testing.....842, 889
Fuels, Gas, for Modern Engines, by George E. Walsh..... 207

G

Gas and Electric Light Commissioners, A Review of the Eighteenth Annual Report of the Massachusetts Board of.....649, 689, 729
Gas and Meters, by John McIlhenny 925
Gas Appliances, by H. K. Morrison..... 406
*Gas Distributing System of the Suburban Gas and Electric Company in Revere and Winthrop, Mass., The Development of the, by A. B. Tenney..... 484
Gas, Domestic Heating by, by Donald McDonald..... 684
Gas Educational Fund, A Statement from the Trustees of the..... 811
Gas Engineers, Young, Hints to Beginners and, by Frederic Egner 122
Gas Engineer, The Dilemmas of the..... 285
*Gas Engines, Central Station, by C. H. Williams..... 407
Gas Engines, Four Months' Experience with, by Geo. MacMillan..... 326
Gas, Effect of Pressure of, on Luminosity..... 370
Gas Fires, The Choice of, by Thos Fletcher..... 132
*Gas for Industrial Purposes, by James H. Walker..... 488
Gas Fuels for Modern Engines, by George E. Walsh..... 207

INDEX TO VOL. LXXVIII.

Gas, Illuminating, The Determination of Benzine in, by L. M. Dennis and J. G. O'Neill 770
Gas, Increasing Sales of, to Existing Consumers, by B. W. Perkins 929
Gas Industry and the Manufacture of Cyanide, The..... 127
Gas Industry, The Interest of the, in the Measurement of Illumination 49
*Gas Main, High Pressure, Under the Mississippi River, The, by Thos. D. Miller..... 883
*Gas, Natural, in Holland..... 130
Gas, per Pound of Coal Carbonized, Maximum Yield of, by John Somerville..... 922
*Gas Purification and Gas Purifiers, by Pierre Plantinga.... 82
Gas, Removing Naphthaline and Cyanogen from..... 247
Gas Securities, The Market for.....13, 54, 94, 134, 174, 254, 294, 334, 374, 414, 454, 494, 535, 574, 615, 654, 695, 734, 775, 814, 855, 894, 935, 1015
*Gas Stoves, Chimneys for, by C. F. Hauss..... 765
Gas Supply of Lynchburg, Va., Changes in the..... 731
Gas Supply, Rules for the, Louisiana Purchase Exposition, 1904..... 450
Gas, The Extraction of Cyanogen from..... 166
Gas, Transmission of Power by..... 810
*Gas Works, Ammonia Concentration at, by John S. Unger 327
*Gauge Glass Protector, Wallach's,..... 372
Germany, The Industrial Situation in..... 251
Goodell, John M., City Engineering Problems..... 289
*Goodnow, Geo. F., Distributing Artificial Gas Under High Pressure, A Second Year's Experience..... 367
*Government Reports on Lighting in Schools, etc., Bavarian 803

H

*Hauss, C. F. Chimneys for Gas Stoves 765
Hazards, Fire, Some Electrical, by W. Dovereux..... 328
Heating by Gas, Domestic, by Donald McDonald..... 684
Heating of Transformers, by B. C. Clinker..... 91
*Heating Secondary Air, Is the Zigzag Flue Necessary for? by James Whyte..... 766
*High Pressure, Distributing Artificial Gas Under, A Second Year's Experience, by Geo. F. Goodnow..... 367
*High Pressure Distribution, Notes on, by W. A. Learned.. 522
*High Pressure Gas Main Under the Mississippi River, The, by Thos. D. Miller..... 883
*High Tension Circuits, An Electrically Operated Oil Circuit Breaker for..... 169
*Holland, Natural Gas in..... 130
Horizontal and Inclined Retorts, The Comparative Duration of..... 809
Horizontal and Inclined Retorts, The Comparative Life of. 892
House Piping, Notes on..... 162
Humphreys, Norton H., Correspondence, Special English,. 171, 330, 491, 651, 852, 1012

I

Illuminating Gas, The Determination of Benzene in, by L. M. Dennis and J. G. O'Neill..... 770
Illumination, Mine, A Cheap, Effective and Safe Method of, by Jno. W. Maxwell..... 369
Illumination, The Interest of the Gas Industry in the Measurement of..... 49
*Improved Test Burner, An..... 367
Incandescent Lighting, An Experience with, by A. F. Cooper 445
Incandescent Mantles in Commercial Use, A Few Photometric Tests of, by R. C. Cornish..... 330
Inclined and Horizontal Retorts, The Comparative Duration of 809
Inclined and Horizontal Retorts, The Comparative Life of. 892
*Inclined Retort Installation, English, Milan, Italy.....202, 243
Indian Cities, The Lighting of Some, by A. J. Kennedy... 247
Industrial Establishments, Electrical Distribution of Power in, by Cecil P. Poole..... 48
Industrial Situation in Germany, The..... 251
Insulators, The Testing of, by F. O. Blackwell..... 692
Insurance, Fire, and Electricity..... 131
"Introspect" of a "Retrospect," An, by John Young..... 122
Irwin, W. G., Electrical Work in the Phillipines..... 170
Items of General Interest, A Few, by Frederic Egner..... 844
Items of Interest from Various Localities, 12, 52, 92, 132, 172, 252, 292 332, 372, 412, 452, 492, 533, 572, 613, 652, 693, 732, 773, 812, 853, 892, 933, 972, 1013

J

Joints, Cement, for Street Mains, Experiences with, by B. F. Bullock..... 803
Juries in Technical Trials, by E. P. Watson..... 532

K

Keep, W. J., Retort, Oven Coke for Foundry Use..... 970
Kennedy, A. J., Lighting of Some Indian Cities, The..... 247
Kennelly, A. E., Electrical Science During the Year 1902, The Progress of..... 50
Knowlton, H. S., Educational Points, Some..... 932

L

Labor in New England..... 853
Labor Question, The Manufacturers and the..... 651
*Lamps, Electric, in England, The Manufacture of..... 806
Lamps, Nernst, Electric Conductivity of Filaments of..... 251
Lamp, The Nernst..... 490
Lamp, The Nernst, in the Berlin Court of Appeal..... 614
*Lead Storage Battery, Ampere Hour Capacity of the, by A. L. Marsh..... 288
*Learned, W. A., High Pressure Distribution, Notes on.... 522
*Lewes, Prof. Vivian B., Coal Gas and Allied Illuminants, The Future of—Cantor Lectures.....5, 42, 86, 125
Life of Horizontal and Inclined Retorts, The Comparative. 892
Light and Photometry, Units of..... 129
Lighting, Incandescent, An Experience with, by A. F. Cooper 445
*Lighting in Schools, etc., Bavarian Government Reports on 803
*Lighting of Factories and Workshops..... 165
Lighting of Some Indian Cities, The, by A. J. Kennedy.... 247
Louisiana Purchase Exposition, 1904, Rules for the Gas Supply..... 450
Lucas Lamp, The Theory of the..... 91
Luminosity, Effect of Pressure of Gas on..... 370
Lynchburg, Va., Changes in the Gas Supply of..... 731

M

Macadam Pavement, Bituminous..... 208
MacMillan, Geo., Gas Engines, Four Months' Experience with..... 326
Mains, Street, Experiences with Cement Joints for, by B. F. Bullock..... 803
Mantles, Incandescent, in Commercial Use, A few Photometric Tests of, by R. C. Cornish..... 330
Manufacture of Cyanide, The Gas Industry and the..... 127
Manufacturers and the Labor Question, The..... 651
Manufacturing Methods, Modern..... 971
Market for Gas Securities, The, 13, 54, 94, 134, 174, 254, 294, 334, 374, 414, 454, 494, 535, 574, 615, 654, 695, 734, 775, 814, 855, 894, 935, 1015
*Marsh, A. L., Ampere Hour Capacity of the Lead Storage Battery..... 288
Massachusetts Board of Gas and Electric Light Commissioners, A Review of the Eighteenth Annual Report of the.....649, 689, 729
Maxwell, Jno. W., Mine Illumination, A Cheap, Effective and Safe Method of..... 369
Mayes, Alfred H., Engineers who will be Wanted, The 287
McDonald, Donald, Domestic Heating by Gas..... 684
McIlhenny, John, Gas and Meters..... 925
McKay, Wm. E., President New England Association of Gas Engineers, Address of..... 322
Measurement of Illumination, The Interest of the Gas Industry in the..... 49
Mechanical Accountant, The..... 210
Methods of Enhancing the Usefulness of Gas Managers' Associations, American..... 882
*Methods of Testing Fuel Gas Appliances, Report of the Committee Appointed by the Ohio Gas Light Association to Determine Standard.....842, 889
Michigan Gas Association, Tenth Annual Meeting..... 324
*Miller, Thos. D., High Pressure Gas Main Under the Mississippi River, The..... 883
Mining Coal, Electrical Apparatus in, by S. B. Belden..... 1010
Morrison, H. K., Gas Appliances..... 406

N

Naphthaline and Cyanogen, Removing from Gas..... 247
*Naphthaline, by Dr. W. H , Birchmore 902, 1002
Natural Gas as a Factor in the Artificial Gas Business, by F. W. Stone..... 570
*Natural Gas in Holland..... 130
Nernst Lamp in the Berlin Court of Appeal, The..... 614
Nernst Lamps, Electric Conducitivity of Filaments of..... 251
Nernst Lamp, The..... 490
New England Association of Gas Engineers, Thirty-third Annual Meeting.....322, 363, 402, 442, 482, 522
Notice—Pacific Coast Gas Association..... 1001
NOTICES, OFFICIAL—
Michigan Gas Association.....81, 121, 161, 201, 242
New England Association of Gas Engineers, 121, 161, 201, 241
Ohio Gas Light Association...121, 161, 201, 242, 321, 361, 401
Western Gas Association....81, 122, 162, 202, 242, 321, 362, 402, 441, 481, 521, 561, 601, 641, 681, 721, 761

O

Oakland (Cal.) Gas, Light and Heat Company, and its President, John A. Britton, Something about the..... 284
Ohio Gas Light Association, Nineteenth Annual Meeting, 528, 562, 602, 642, 682, 722
Ohio Gas Light Association, Questions thus far Received for the Question Box, Nineteenth Annual Meeting.... 282
*Oil Circuit Breaker for High Tension Circuits, An Electrically Operated..... 169
*Oil Pump, An Unusual Design of..... 209
Ovens, Bee-Hive, Coking in, with Reference to Yield, by Chas. Catlett, M. E... 167
O'Neill, J. G., and L. M. Dennis, Benzene in Illuminating Gas, The Determination of..... 770

P

Patents, Recent, of Interest to Gas Men.....333, 452
Pavement, Bituminous Macadam..... 208
Pavements, Coal Tar, in Northern New England..... 732
Perkins, B. W., Increasing Sales of Gas to Existing Consumers..... 929
Petroleum Industry of California in 1902, The..... 47
Phillipines, Electrical Work in the, by W. G. Irwin..... 170
*Photometer, The Simmance-Abady..... 530
Photometric Tests of Incandescent Mantles in Commercial Use, A Few, by R. C. Cornish..... 330
Photometry, Units of Light and..... 129
Pipe Joints, A New Material for..... 845
Piping, House, Notes on..... 162
*Plantinga, Pierre, Gas Purification and Gas Purifiers 82
Poole, Cecil P., Electrical Distribution of Power in Industrial Establishments..... 48
Power Plant, Points in the Design of a, by W. H. Booth.... 773
Power, Transmission of, by Gas..... 810
*Pressure, High, Distributing Artificial Gas Under, A Second Year's Experience, by Geo. F. Goodnow..... 367
Pressure of Gas on Luminosity, Effect of..... 370
Property Returns on Public Works, by A. F. Bridgman.... 129
*Pump, Oil, An Unusual Design of..... 209
Pumps, Rotary..... 88

Q

Question Box, Nineteenth Annual Meeting, Ohio Gas Light Association, Questions thus far Received for the..... 282

R

*Reports on Lighting in Schools, etc., Bavarian Government 803
Records and Returns, Central Station, Notes on the Design of, by F. H. Davies 849
*Recuperative Benches, The Construction and Operation of, by W. A. Baehr..... 563
*Retort, Inclined, Installation, English, Milan, Italy.....202, 243
Retort Oven Coke for Foundry Use, by W. J. Keep..... 970
Retorts, Horizontal and Inclined, The Comparative Duration of 809
Retorts, Horizontal and Inclined, The Comparative Life of 892
Retrospect, A, by Frederic Egner..... 2
"Retrospect," An "Introspect" of a, by John Young 122
*Richardson Scale, The..... 87
Rotary Pumps..... 88

S

Sales of Gas to Existing Consumers, Increasing, by B. W. Perkins 929
Saward, F. E., Bituminous Coal Industry, Concentration in the..... 532
Saward, F. E., Briquetting Coal Dust..... 287
Saward, F. E., Coal and Coke Development, Activity in..... 764
Saward, F. E., Coke, The Demand for..... 451
*Scale, The Richardson..... 87
*Schools, etc., Lighting in, Bavarian Government Reports on 803
Science, Electrical, During the Year 1902, The Progress of, by A. E. Kennelly..... 50
Seabury, W. G., President of the Kansas Gas, Water and Electric Light Association, Address of 5
*Secondary Air, Is the Zigzag Flue Necessary for Heating? by James Whyte..... 766
Securities, Gas, The Market for.....13, 54, 94, 134, 174, 254, 294, 334, 374, 414, 454, 494, 535, 574, 615, 654, 695, 734, 775, 814, 855, 894, 935, 1015
Shepardson, Prof. George D., Testing, The Economic Value of..... 248
Shuster, J. W., Charging, Rates and Methods of..... 211
Selenium in Coke..... 763
*Simmance-Abady Photometer, The..... 530
Size of Central Stations, Economical and Safe Limits in the 768
Smoke, Determining the Density of..... 805
Somerville, John, Maximum Yield of Gas per Pound of Coal Carbonized..... 922
*Standard Methods of Testing Fuel Gas Appliances, Report of the Committee Appointed by the Ohio Gas Light Association to Determine.....842, 889
Standard Wrench Attachment, The..... 88
Steam Turbines to Date, by R. H. Thurston, L.L.D 531
Stone, F. W., Natural Gas as a Factor in the Artificial Gas Business 570
Storage Batteries in Electrical Supply, by Alton D. Adams 12
Stoves, Gas, Chimneys for, by C. F. Hauss..... 765
Street Mains, Experiences with Cement Joints for, by B. F. Bullock 803
Success 655
*Sundstrom, Carl, Sulphur in Coal and Coke, A Rapid Method for Determining 285

T

Technical Trials, Juries in, by E. P. Watson..... 532
*Tenney, A. B., Gas Distributing System of the Suburban Gas and Electric Company, in Revere and Winthrop, Mass., The Development of the 484
*Test Burner, An Improved..... 369
*Testing Fuel Gas Appliances, Report of the Committee Appointed by the Ohio Gas Light Association to Determine Standard Methods of..... .....842, 889
Testing of Insulators, The, by F. O. Blackwell..... 692
Testing, The Economic Value of, by Prof. George D. Shepardson 248
Tests, Photometric, of Incandescent Mantles in Commercial Use, A Few, by R. C. Cornish..... 330

INDEX TO VOL. LXXVIII.

Thurston, R. H., L.L.D., Steam Turbines to Date 531
Transformers, Heating of, by R. C. Clinker..... 91
Transmission of Power by Gas..... 810
Trustees of the Gas Educational Fund, A Statement from the 811

U

*Unger, John S., Ammonia Concentration at Gas Works.... 327
Units of Light and Photometry..... 129
Usefulness of Gas Managers' Associations, American Methods of Enhancing the..... 882

V

Value of Testing, The Economic, by Prof. George D. Shepardson 248
Van Ness, L. G., Lost and Unaccounted-for Current..... 1011

W

*Walker, James H., Gas for Industrial Purposes..... 488
*Wallach's Gauge Glass Protector..... 372
Walsh, George E., Gas Fuels for Modern Engines..... 207
Water Power Plant Near Grenoble, France..... 411
Watson, F. P., Juries in Technical Trials..... 532
Western Gas Association, Twenty-sixth Annual Meeting, 882, 922, 962, 1002
*Whyte, James, Heating Secondary Air, Is the Zigzag Flue Necessary for?..... 766
*Williams, C. H., Central Station Gas Engines..... 407
Wiring of Buildings, The..... 291
*Witter, W. E., Electrical Equipment, Hints on the Care of 89
*Workshops and Factories, Lighting of..... 165
Wrench Attachment, The Standard..... 88
*Wrinkle Department, Second Annual Meeting, Wisconsin Gas Association, Edited by R. C. Cornish..... 571

Y

Young Gas Engineers, Hints to Beginners and, by Frederic Egner..... 122
Young, John, "Introspect" of a "Retrospect," An..... 122

Z

*Zigzag Flue Necessary for Heating Secondary Air? Is the, by James Whyte..... 766

SPECIAL INDEX OF REPORTS OF PROCEEDINGS OF ASSOCIATIONS.

Michigan Gas Association—Tenth Annual Meeting.

Committees, Appointment of..... 325
Executive Committee, Report of..... 324
Invitations, A Brace of..... 325
Members, New, Election of..... 324
Next Place of Meeting, Report of Committee on..... 326
Nominations, Report of Committee on..... 325
Officers, Election of..... 325
President's Address, Report of Committee on..... 325
Resolutions, Report of Committee on..... 326
Roll Call..... 325
Scholarship, Report of Committee on..... 325
Thanks, Vote of..... 326

New England Association of Gas Engineers—Thirty-third Annual Meeting.

Address, Inaugural..... 322
Directors, Report of the Board of..... 322
*Library Fund, etc., Special Report of the Board of Directors 363
Membership, Additions to and Changes in..... 322
Members, New, Election of..... 322
Nomination of Officers, Appointment of Committee on 365
Officers, Election of..... 522
Presentation, A, by Mr. Egner..... 483
President's Address, Appointment of Committee on..... 324
President's Address, Report of Committee on..... 445
Question Box..... 403, 442, 448, 482
Regret, Letters of, Acknowledging..... 527
Roll Call..... 406
Secretary and Treasurer, Reports of the..... 363
Selling Gas, Committee on, Something from the..... 522
Telegrams of Sympathy, Two..... 445

PAPERS READ—

Bill Collection, Methods of, by S. E. Baker..... 365
*Electrical Disturbance in the Gas Industry, An, by D. D. Barnum..... 447
Gas Appliances, by H. K. Morrison..... 406
*Gas Distributing System of the Suburban Gas and Electric Company, in Revere and Winthrop, Mass., The Development of the, by A. B. Tenny..... 484
*High Pressure Distribution, Notes on, by W. A. Learned 522
Incandescent Lighting, An Experience with, by A. F. Cooper..... 445

Ohio Gas Light Association - Nineteenth Annual Meeting

Address of Welcome and Response..... 528
Differential Rates, Discussing 726
Executive Committee, Report of..... 529
General Appears, The..... 689
Invitations, A Brace of..... 570
Letters and Telegrams, Some..... 530
Members, New, Election of..... 529
Members, New, Welcoming the..... 529
Memorials, Report of Committee on 722
Next Place of Meeting, Report of Committee on..... 728
Nominations, Report of Committee on..... 729
*Novelty Advertising Department, Edited by B. W. Perkins 722
Officers, Election of..... 729
President's Address..... 449
President's Address, Appointment of Committee on..... 530
President's Address, Report of Committee on..... 726
Question Box 605, 643, 682
Research Work, Memorandum Regarding..... 728
Responses, Some..... 729
Roll Call..... 528
Secretary and Treasury, Reports of..... 529
Standard Methods of Testing Gas Appliances, Report of the Committee on..... 726
Thanks, Votes of..... 729
Transportation..... 728

PROGRESS DEPARTMENT—

Appliances..... 607
Distribution 609
Lamps, Burners, etc..... 608
Manufacture..... 611
Miscellaneous..... 613
Summary..... 613

*WRINKLE DEPARTMENT—

Alarm Gauge, Electric 562
Automatic Intermittent Siphon Used for Flushing Scrubbers in Gas Works..... 563
Sprinkler for Scrubber..... 563
Standpipe Jointing..... 563
Valve Gear..... 562
Ventilator for Double Floor Retort House..... 563

PAPERS READ—

*Recuperative Benches, The Construction and Operation of, by W. A Baehr..... 563
Natural Gas as a Factor in the Artificial Gas Business, F. W. Stone..... 570
Domestic Heating by Gas, by Donald McDonald..... 684

Western Gas Association—Twenty-sixth Annual Meeting

Address, The Welcoming..... 882
Birchmore Lecture, A Comment on the..... 1006
Captain White Makes an Explanation..... 889
Committees, Special, Appointment of..... 883
Directors, Report of the Board of..... 883
Gasholder Specifications, Report of Committee on..... 1006
Honorary Membership, Elected to..... 1007
Invitations, a Brace of..... 883
John Dell, A Telegram from..... 925
Library Committee, Report of..... 928
Members, New, Election of 928
Memorials, Report of the Committee on..... 1006
Next Place of Meeting, Report of Committee on..... 928
Officers, Election of..... 927
Photograph, Arranging for a..... 925
President Barret's Welcome..... 883
Proceedings, Report of Committee on Publication of..... 928
Response, Mr. Doty's..... 882
Roll Call..... 928
Secretary and Treasurer, Report of..... 883

*WRINKLE DEPARTMENT—

Choked Standpipes, Cleaning..... 1007
Coke Rake..... 1007
Drip Separator for High Pressure Line..... 1007
Gas Safety Seal..... 1007
Joints for River Crossings. 1008
Pipe Forcing Jack 1009
Pipe Tapping Crow, Adjustable 1008
Pressure Gauge, Long Distance..... 1009
Scrubbing, Cold Water for 1007
Service Drip..... 1008
Testing House Piping..... 1010
Testing New Gas Mains with Air Pressure..... 1008
Tunneller, Improved..... 1008

PAPERS READ—

Gas and Meters, by John McIlhenny..... 925
*High Pressure Gas Main Under the Mississippi River, The, by Thos. D. Miller..... 883
Increasing Sales of Gas to Existing Consumers, by B. W. Perkins..... 929
Maximum Yield of Gas per Pound of Coal Carbonized, by John Somerville 922
*Naphthaline, by Dr. W. H. Birchmore..... 962, 1002